

# (12) UK Patent Application (19) GB (11) 2 102 174 A

(21) Application No 8122245  
(22) Date of filing 18 Jul 1981  
(43) Application published  
26 Jan 1983

(51) INT CL<sup>3</sup>  
G07F 7/06  
(52) Domestic classification  
G4V BJ  
U1S 1253 G4V

(56) Documents cited  
GBA 2065947  
GB 1552927  
GB 1019405  
GB 0981328  
GB 0900124  
EPA 0007248  
US 3792765

(58) Field of search  
G4V

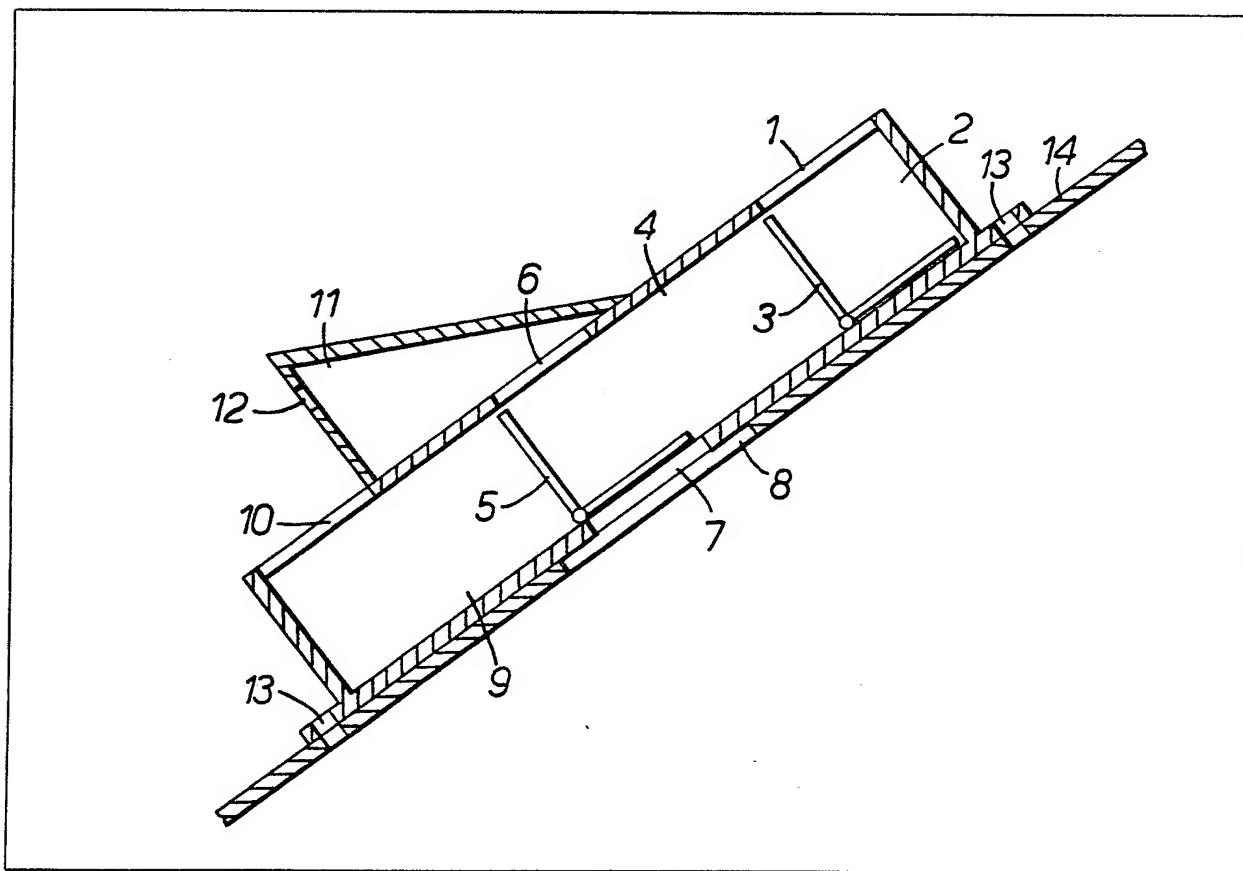
(71) Applicants  
Carol Anne Rees,  
50 Caerwern, Ynysfach,  
Merthyr Tydfil, Glam.  
Geraint Rees,  
12 Brymdulais Ave, Seven  
Sisters, Nr Neath, W.  
Glam.

(72) Inventors  
Carol Anne Rees,  
Geraint Rees  
(74) Agents  
Wynne-Jones Laine and  
James,  
33 St. Mary Street, Cardiff  
CF1 2AB

## (54) Waste item recovery devices

(57) A waste item to be recovered is placed in a receiving chamber 2 whereupon a flap unit 3 will operate to tip the waste item into an identification chamber 4. If a

recognition device in a chamber 11 correctly identifies the waste item as viewed through an aperture 6, a flap unit 5 will be actuated to tip the waste unit through an opening 7 into a storage container 14 and a coin, ticket or token will be issued through an outlet 12. If the waste item is not correctly recognised the flap unit 5 will operate in the opposite direction to deliver the item to a rejection chamber 9. The recognition device in chamber 11 may be programmed to deliver a token or the like only after a predetermined or a random number of waste items have been recognised.

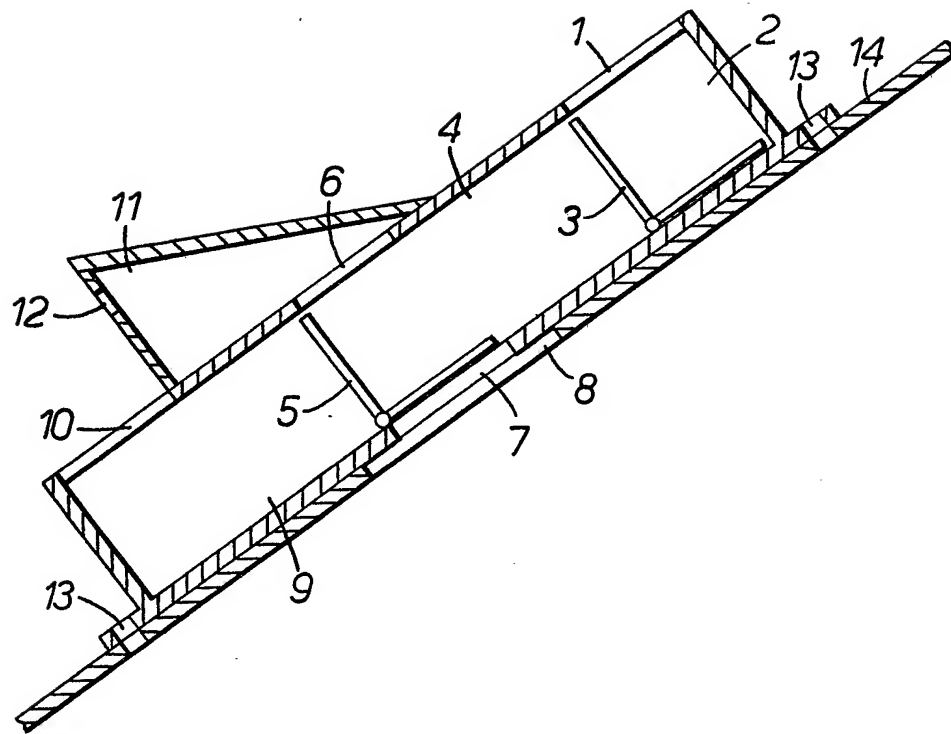


The drawing originally filed was informal and the print here reproduced is taken from a later filed formal copy.

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## SPECIFICATION

**Improvements relating to waste item recovery devices**

This invention is concerned with devices for receiving recoverable waste items, for example bottles or aluminium cans. At present large steel storage containers are provided into which the general public may insert bottles. This collection of bottles (termed cullet) is then collected and delivered to a recycling unit where the glass is melted down and re-used. Such "Bottle Banks" rely upon the goodwill of the general public to insert unwanted bottles but there is generally no incentive provided other than the argument of environmental improvements achieved by recycling waste materials.

It is an object of this invention to provide means for providing further encouragement to the general public to insert waste items into collecting containers.

Accordingly this invention provides a device for receipt of recoverable waste items, comprising a waste item receiving unit, a recognition device for determining the presence in the receiving unit of an acceptable waste item, an outlet from the receiving unit for the waste item, and a dispensing device for producing a coin, token or the like after one waste item or a sequence of more than one waste item is registered by the recognition device.

When using such a device a member of the public will have the opportunity of receiving some form of coin or token in return for his labours. Where the waste items are of some intrinsic value it may be feasible to issue a coin or token of small value for each waste item inserted. Generally, however, it is anticipated that the coin or token would only be issued by the dispensing device upon receipt of a predetermined number of waste items or a number of waste items determined by a random number calculator. The tokens could include bank notes, tickets or metal discs exchangeable for cash or goods or even consumable items such as bars of chocolate or filled bottles.

The receiving unit might be so designed that it is basically shaped to the form of the waste item to be received. Where the device is for receipt of aluminium cans or other crushable items the receiving unit could include a crushing device for compressing an acceptable waste item prior to passage thereof to the outlet. Thus the crushing device could include an operating handle or lever to be actuated by a user.

The recognition device could be designed to recognise any one or more features such as predetermined shape, size, colour, reference, marking or other special characteristic of the waste item. Particularly where the dispensing device will issue a token only after a number of waste items have been received it is advantageous to provide that the recognition device includes a counter for recording numbers of waste items received.

In the preferred embodiment access to the

outlet will be controlled by the recognition device. In this instance the apparatus will include a recognition outlet for items not recognised by the recognition device.

It is of advantage to include attachment means for securing the device about an inlet to a storage container for the waste items. Then the device can readily be interchanged between respective storage containers so that a full container need not carry its own device for receiving and recognising the waste items. The invention also extends to the combination of the device for receiving and recognising waste items with a storage container, the outlet of the device leading into the storage container.

The invention may be performed in various ways and a preferred embodiment thereof will now be described with reference to the accompanying drawing which is a cross-section through a device for receiving and recognising waste items attached to a portion of a storage container.

The device shown in the drawing includes an input aperture, leading to a receiving chamber 2 which will hold a waste item which is to be stored in a storage container 14. A flap unit 3 will be operated (either mechanically or by some form of electrical, electro-mechanical or pressure device) to tilt about a pivot and pass the waste item into an identification chamber 4. A chamber 11 incorporates a recognition device which will determine, via an aperture 6, whether the waste item present in the identification chamber 4 is acceptable. If the waste item is acceptable then a flap unit 5 will be actuated to tip the waste item through an aperture 7 so that the waste item enters the storage container 14 through its inlet aperture 8. If the waste item is not recognised then the flap unit 5 will be actuated in the opposite direction to tip the waste item into a rejection chamber 9 from which it may be withdrawn through a reject output aperture 10. The recognition device within the chamber 11 will incorporate a counter and a random number calculator so that when a number of waste items corresponding to the random number calculated is recognised a ticket or token will be issued through an outlet 12. The unit is detachably secured to the storage container 14 by bolts passing through holes 13.

## 115 CLAIMS (filed 16th July 1982)

1. A device for receipt of recoverable waste items, comprising a waste item receiving unit, a recognition device for determining the presence in the receiving unit of an acceptable waste item, an outlet from the receiving unit for the waste item, and a dispensing device for producing a coin, token or the like after one waste item or a sequence of more than one waste item is registered by the recognition device.

2. A device according to claim 1, wherein the recognition device includes a counter for recording numbers of waste items received.

3. A device according to claim 2, wherein the

dispensing device is assigned to issue a token or the like upon receipt of a predetermined number of waste items or a number of waste items determined by a random number calculator.

5 4. A device according to any one of claims 1 to 3, wherein access to the outlet is controlled by the recognition device.

10 5. A device according to claim 4, including a rejection outlet for items not recognised by the recognition device.

6. A device according to any one of claims 1 to 5, wherein the receiving unit is basically shaped to the form of waste item to be received.

15 7. A device according to any one of claims 1 to 6, wherein the receiving unit includes a crushing device for compressing an acceptable waste item prior to passage thereof to the outlet.

8. A device according to claim 7, wherein the

20 crushing device includes an operating handle or lever to be actuated by a user.

9. A device according to any one of claims 1 to 8, wherein the recognition device is designed to recognise a predetermined shape, size, colour, reference marking or other special characteristic

25 of the waste item.

10. A device according to any one of claims 1 to 9, including attachment means for securing the device about an inlet to a storage container for the waste items.

30 11. A device according to any one of claims 1 to 10, wherein the outlet leads into a storage container for the waste items, with which the device is combined.

35 12. A device for receipt of recoverable waste items substantially as herein described with reference to the accompanying drawings.

**PUB-NO:** GB002102174A  
**DOCUMENT-IDENTIFIER:** GB 2102174 A  
**TITLE:** Waste item  
recovery devices  
**PUBN-DATE:** January 26, 1983

**INVENTOR-INFORMATION:**

<b>NAME</b>	<b>COUNTRY</b>
REES, CAROL ANNE	GB
REES, GERAINT	GB

**ASSIGNEE-INFORMATION:**

<b>NAME</b>	<b>COUNTRY</b>
REES CAROL ANNE	N/A
REES GERAINT	N/A

**APPL-NO:** GB08122245  
**APPL-DATE:** July 18, 1981

**PRIORITY-DATA:** GB08122245A (July 18,  
1981)

**INT-CL (IPC):** G07F007/06

**EUR-CL (EPC):** G07F007/06

**US-CL-CURRENT:** 194/208

**ABSTRACT:**

A waste item to be recovered is placed in a receiving chamber 2 whereupon a flap unit 3 will operate to tip the waste item into an identification chamber 4. If a recognition device in a chamber 11 correctly identifies the waste item as viewed through an aperture 6, a flap unit 5 will be actuated to tip the waste unit through an opening 7 into a storage container 14 and a coin, ticket or token will be issued through an outlet 12. If the waste item is not correctly recognised the flap unit 5 will operate in the opposite direction to deliver the item to a rejection chamber 9. The

recognition device in chamber 11 may be programmed to deliver a token or the like only after a predetermined or a random number of waste items have been recognised. ☐